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Abstract

REVIEW OF RESEARCH REACTORS IN THE USSR

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Research reactors of various types and for various applications have been developed in the USSR.

The paper describes the main lines of the development on research reactors:

1. Development of a unique research reactor with a super-high neutron flux and the lines of the future development.

Reactor SM-2 operates at the design power of 50 mega-watts. A thermal neutron flux of $3.10^{15} n/cm^2$ sec has been obtained in the neutron "trap". The reactor is designed for production of transuranium elements and for carrying out physical and engineering research. The paper presents physical and operational characteristics of reactor SM-2.

2. Development of research reactors of new construction for testing fuel elements and materials (pressurized reactors, swimming-pool reactors).

The paper makes a comparative analysis of modern loop reactors, discusses the main engineering and physical problems involved in development and operation of such reactors, notes the essential features of new reactors which provide much better conditions for testing fuel elements and materials.

3. Increase of the neutron flux in the operating reactors and expansion of their experimental possibilites.

The paper describes the most important improvements made in the operating reactors with neutron fluxes of $10^{13} n/cm^2 sec$ and $10^{14} n/cm^2 sec$.

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